

Serial No. 10/083,774

REMARKS

Claims 8-15 and 26-28 are allowed.

Claims 1, 5, 6 and 20 are rejected as obvious over Southward (US 5, 627,896) in view of Trantow (US 5,586,190). Southward discloses an active noise and vibration control system in which the output is given as: $u(k) = W_0 \cos(\omega k T) + W_1 \sin(\omega k T)$ (col. 7, l. 9). Southward also discloses reducing the magnitude of W_0 and W_1 when their RMS value is greater than a threshold value. (col. 7, lines 14-22). However, W_0 and W_1 are not control weighting, but are part of the command signal $u(k)$. (col. 7, l. 9). Thus, the magnitude of the command signal is *directly* reduced when necessary to avoid saturation, simply to avoid clipping. (col. 8, lines 15-19). The noise cancellation effected by the system is reduced by the same amount.

In one example of the present invention, the control weighting component associated with an otherwise-saturated actuator is modified, and the command signals are then calculated for the optimum noise reduction based upon the sensor signals and based upon the new control weighting. This is better than simply reducing the otherwise-saturated actuator because unwanted noise signals could be generated by the non-saturated actuators in the absence of the expected signal from reduced actuator. Also, the other actuators can compensate for the reduction of the signal to the otherwise-saturated actuator.

Claims 1, 16 and 20 have been amended to clarify that the command signal has a plurality of command signal components each associated with a control weighting component of the control weighting and that the control weighting components are varied relative to one another. None of the cited references, alone or in combination, discloses this feature. Even using the systems of Southward and Trantow in an environment with multiple sources of noise

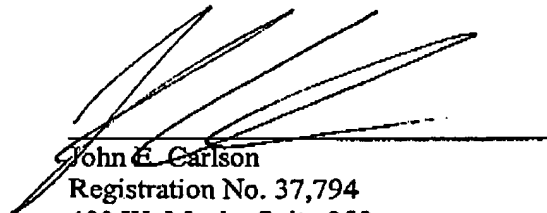
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disturbance would not provide a system where control weighting components are varied relative to one another. The magnitude of all of the outputs would be reduced by the same amount to avoid clipping. Therefore, claims 1, 16 and 20 are not obvious in view of the cited references.

Please charge Deposit Account No. 50-1482 \$120 for a one-month extension of time. If any additional fees or extensions of time are required, please charge to Deposit Account No. 50-1482.

Respectfully submitted,

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